

PATENT

Atty. Docket No. TJK/432

REMARKS/ARGUMENTS

Claims 1-3, 6, 16-18 remain pending in the application, claim 9 has been canceled, and claims 19-24 have been added.

Support for amended claim 1 may be found in FIG. 11 which clearly shows that: "the at least one sensor is the only element interposed between the connector and the top part of the elongated body."

Support for amended claims 2, 3, 6 and 16-17 may be found in previously presented claims 2, 3, 6 and 16-17.

Support for new claims 19 and 21 may be found in FIGS 10 and 11 as well as paragraph [0043]: "Load cells (22A, 22B) are located below the connector (91), load cell (22A) being slightly biased towards the toe area of the foot and load cell (22B) being slightly biased towards the heel area."

Support for new claim 20 may be found in paragraph [0059]: "In all of the described embodiments, the sensors (22A, 22B) may be directly connected to interface (30) of control system (100) or indirectly using an intermediary system (not shown), for instance a wireless emitter. Of course other types of communication technologies may be used, such as, for example, optical."

Support for new claims 22-24 may be found in paragraph [0025]: "The sensors (22A, 22B, 24A, 24B, 26) may include myoelectric sensors, neuro-sensors, kinematic sensors, kinetic sensors, strain gauges or plantar pressure sensors."

Rejection under 35 U.S.C. 102(b)

In the Office Action, the Examiner has rejected claims 1-3, 6, 9, 16 and 18 under 35 U.S.C. 102(b) as being anticipated by Allen (US Patent No. 5,571,213). Respectfully, the Applicant disagrees with the Examiner for the following reason.

Currently amended claim 1 recites:

"An instrumented prosthetic foot for use with an actuated leg prosthesis controlled by a controller, the instrumented prosthetic foot comprising:

An elongated body having a top and a bottom part;

CH1 10992889.2

5

PATENT

Atty. Docket No. TJK/432

a connector to connect the instrumented prosthetic foot to the leg prosthesis; and

at least one sensor positioned between the connector and the top part of the elongated body; the at least one sensor transmitting signals indicative of changes in weight distribution along the foot to the controller;

wherein in operation the at least one sensor is the only element interposed between the connector and the top part of the elongated body." [Emphasis added]

Allen teaches of a prosthetic foot which may, in a certain embodiment, communicate a: "sense of feeling in the foot of the wearer" (column 9, line 60) by including: "means for measuring bending and twisting of various parts of the prosthetic foot" (column 10, lines 31-33). Allen also teaches that: "alternatively pressure sensors could be used in lieu of strain gauges to sense the amount of load being applied to various parts of the foot" but the only shown instance of sensors is in FIG. 8 where: "strain or pressure gauges 801a-e" which are shown to be attached to the toe and heel sections (numerals 106-110 of FIG. 5). This teaches away from an instrumented prosthetic foot having at least one sensor positioned between the connector and the top part of the elongated body and from an instrumented prosthetic foot where in operation the at least one sensor is the only element interposed between the connector and the top part of the elongated body.

The Applicant therefore submits that claim 1 is not anticipated by Allen. Furthermore, the Applicant submits that claims 2, 3, 6, 16 and 18 directly or indirectly dependant on allowable claim 1 are also not anticipated by Allen for at least the same reason. The Applicant also submits that claim 9 has been cancelled.

Rejection under 35 U.S.C. 102(e)

In the Office Action, the Examiner has rejected claims 1-3, 6, 9 and 18 under 35 U.S.C. 102(e) as being anticipated by Christensen (US Patent Application Pub. 2003/012353). Respectfully, the Applicant disagrees with the Examiner for the following reason.

Christensen teaches of a variable resistance which may be used in a prosthetic foot. In FIG. 9 Christensen teaches that: "A plurality of variable resistance cells 254 can be disposed between the adaptor 250 and the prosthetic foot." (paragraph [0057]) and that: "The adaptor 250 can include an attachment plate 258 attached to the foot 200. The adaptor 250 also can include a bracket 262 pivotally coupled to the attachment plate 258 (or to the foot 200). The bracket 262 can include a base 266 and a pair of arms 270 extending therefrom with distal ends pivotally coupled to the attachment plate 258 or foot 200. The

PATENT*Atty. Docket No. TJK/432*

cells 254 can be disposed between the first and second members, or the adaptor 250 and the attachment plate 258 or foot 200." (paragraph [0057]). This teaches away from an instrumented prosthetic foot where in operation the at least one sensor is the only element interposed between the connector and the top part of the elongated body. In the case where a subject is standing straight the cells 254 of FIG. 9 will not register any load as the pair of arms 270 will bear the weight of the subject. Furthermore, the pivot makes it so that only some of the cells 254 will register a load, never all of the cells simultaneously.

Christensen also teaches, in FIG. 9b, that: "a plurality of cells 260 can be disposed between first and second members 264 and 266 of a prosthetic foot. The cells can be positioned in for and aft locations with respect to a pivot point 270 to variably resist movement between the members 264 and 266 in the for and aft directions, or to variably resist plantar flexion and dorsal flexion. Similarly, the cells can be positioned on opposite lateral sides with respect to the pivot point 270 to variably resist movement between the members 264 and 266 in the side to side directions, or to variably resist inversion and eversion," (paragraph [0057]). Again, Christensen teaches away from an instrumented prosthetic foot where in operation the at least one sensor is the only element interposed between the connector and the top part of the elongated body. Once more, in the case where a subject is standing straight the cells of FIG. 9 will not register any load as the pivot point 270 will bear the weight of the subject. Furthermore, the pivot point makes it so that only some of the cells will register a load, never all of the cells simultaneously.

The Applicant therefore submits that claim 1 is not anticipated by Christensen. Furthermore, the Applicant submits that claims 2, 3, 6 and 18 directly or indirectly dependant on allowable claim 1 are also not anticipated by Christensen for at least the same reason. The Applicant also submits that claim 9 has been cancelled.

Rejection under 35 U.S.C. 103(a)

In the Office Action, the Examiner has rejected claims 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Christensen in view of Fang et al. (US Patent Application Pub. 2002/0183803). Respectfully, the Applicant disagrees with the Examiner for the following reason.

Fang et al. teach of a: "system for providing functional neuromuscular stimulation using a universal external controller" (paragraph [0038]). This teaches away from an instrumented prosthetic foot having at least one sensor positioned between the connector and the top part of the elongated body and from an instrumented prosthetic foot where in operation the at least one sensor is the only element interposed

PATENT

Atty. Docket No. TJK/432

between the connector and the top part of the elongated body.

The Applicant therefore submits that nothing in the references applied by the Examiner, taken individually or collectively, would suggest or motivate one skilled in the art an instrumented prosthetic foot where in operation the at least one sensor is the only element interposed between the connector and the top part of the elongated body.

The Applicant therefore submits that claims 16 and 17 are not unpatentable over Christensen in view of Fang et al.

In the Office Action, the Examiner has rejected claim 17 under 35 U.S.C. 103(a) as being unpatentable over Allen in view of Fang et al. Respectfully, the Applicant disagrees with the Examiner for the reasons previously presented.

The Applicant therefore submits that nothing in the references applied by the Examiner, taken individually or collectively, would suggest or motivate one skilled in the art an instrumented prosthetic foot having at least one sensor positioned between the connector and the top part of the elongated body and from an instrumented prosthetic foot where in operation the at least one sensor is the only element interposed between the connector and the top part of the elongated body.

The Applicant therefore submits that claim 17 is not unpatentable over Allen in view of Fang et al.

Applicants respectfully requests that a timely Notice of Allowance be issued in this case.

Date:

1/24/06

Respectfully submitted,

By:

Timothy J. Keefer
Reg. No. 35,567
Attorney for Applicant

SEYFARTH SHAW LLP
55 E. Monroe St., Suite 4200
Chicago, IL 60603-5803
Telephone: (312) 269-8552
Facsimile: (312) 269-8869
e-mail: tkeefe@seyfarth.com